Installation of Ultrasonic Flow Sensor on Narkomed GS

INSTALLATION PROCEDURE

The following procedure is divided into three parts: Replacing the processor chassis to accommodate the new sensor interface connector, downloading new software to the machine, and installing the new ultrasonic flow sensor on the absorber assembly.

Replacing the processor chassis:

1. Turn the System Power switch to STANDBY and remove AC power from the machine.

2. Disable the battery circuit breaker by pulling out its button with a knife or sharp object.

3. Disconnect the following items from their connectors at the underside of the vent box:

   - Data cable (if applicable)
   - Volume sensor interface cable
   - O2 sensor interface cable
   - Breathing pressure line

CAUTION: The processor board contains static sensitive devices. Use ESD protection when handling the processor assembly.

4. Loosen the screws securing the top cover of the machine. Raise the cover, disconnect the ground wire and set the cover aside.

5. Remove the vent box back panel screws. See Figure 1.

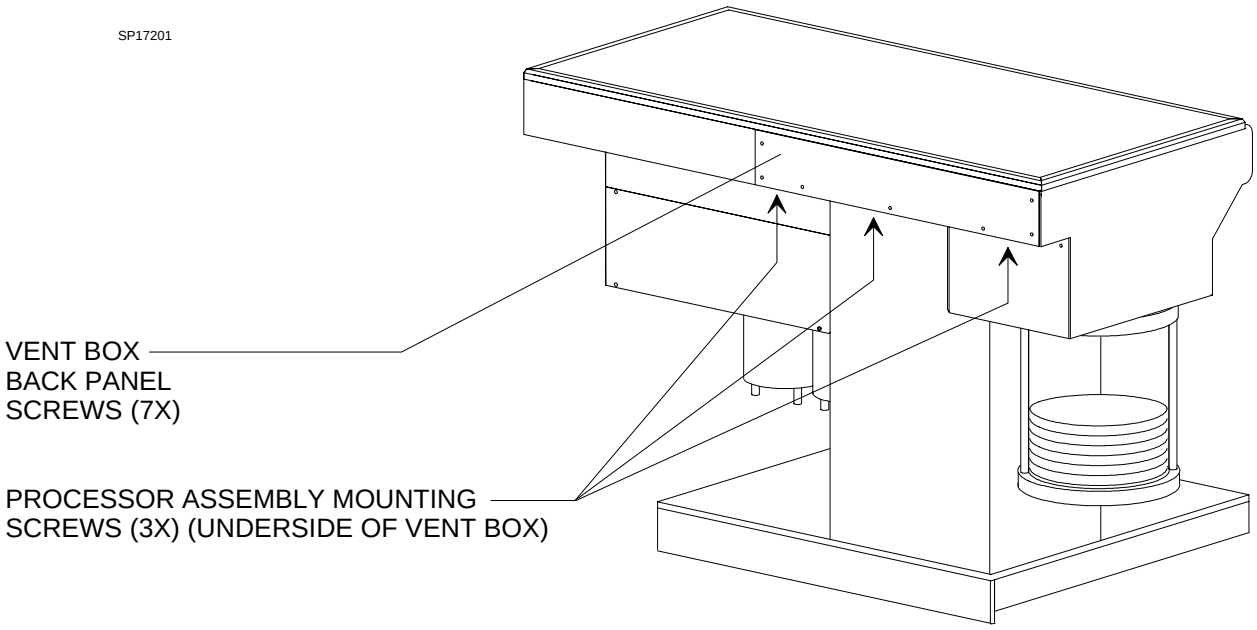
6. Disconnect the following from the processor assembly:

   - J104: Vaporizer select sw wire harness
   - J105: Alarm channel ribbon cable
   - J14: Power supply wire harness
   - J4: Keypad ribbon cable
   - J204: Display ribbon cable

7. At the underside of the vent box, remove the three screws holding the processor assembly to the vent box.

8. Carefully remove the processor assembly from the vent box.

INSTALLATION PROCEDURE (continued)



TOP VIEW OF PROCESSOR ASSEMBLY

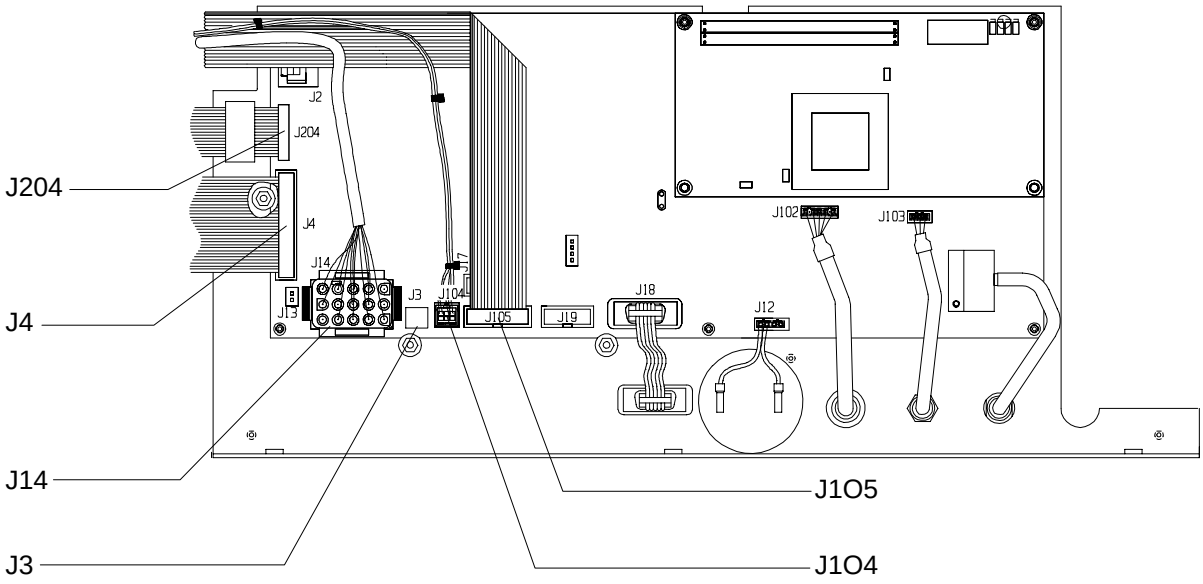


FIGURE 1. Processor Assembly Removal From Machine

INSTALLATION PROCEDURE (continued)

9. Disconnect the following items from their connectors on the processor PCB assembly: See Figure 2.

   - Data cable from J18
   - Speaker wire harness from J12
   - Volume cable from J102
   - O2 cable from J103
   - Breathing pressure tube at bulkhead connector

10. Remove the processor PCB assembly from the chassis. It is held by eight screws, including those at the corners of the smaller board.

11. Transfer the following items from the existing chassis to the new chassis:

    - Data cable assembly
    - Speaker
    - O2 cable assembly
    - Breathing pressure connector

12. Install the new volume cable assembly (if not already installed) in the new chassis. Connect the volume cable extension (see Figure 2) to J3 on the processor PCB assembly.

13. Install the processor PCB assembly onto the new chassis with the original screws and lock washers, and connect the following items to the PCB:

    - Data cable to J18
    - Speaker wire harness to J12
    - Volume cable to J102
    - O2 cable to J103
    - Breathing pressure tube at bulkhead connector

14. Install a configuration jumper across Pins 1 and 2 of JP101 on the GS personality card. (This will reconfigure the software for the ultrasonic flow sensor.) See detail in Figure 2.

15. Carefully position the new processor assembly in the vent box, making sure that its back apron is under the vent box.

16. Reinstall the three processor assembly mounting screws up through the processor chassis and into the threaded inserts in the vent box.

17. Reconnect all of the cables to the processor board that were previously disconnected.

18. Reinstall the vent box back panel with the screws that were previously removed.

19. Reconnect the top cover ground wire and reinstall the top cover on the machine.

20. Reconnect all interface cables except the Volume sensor cable.

21. Enable the battery circuit breaker and restore power to the machine. Verify that the new processor is working properly.

22. Access the secondary service screen and verify that the machine serial number and vaporizer configuration are properly entered into memory. Contact North American Dräger technical service department for access instructions if necessary.

INSTALLATION PROCEDURE (continued)

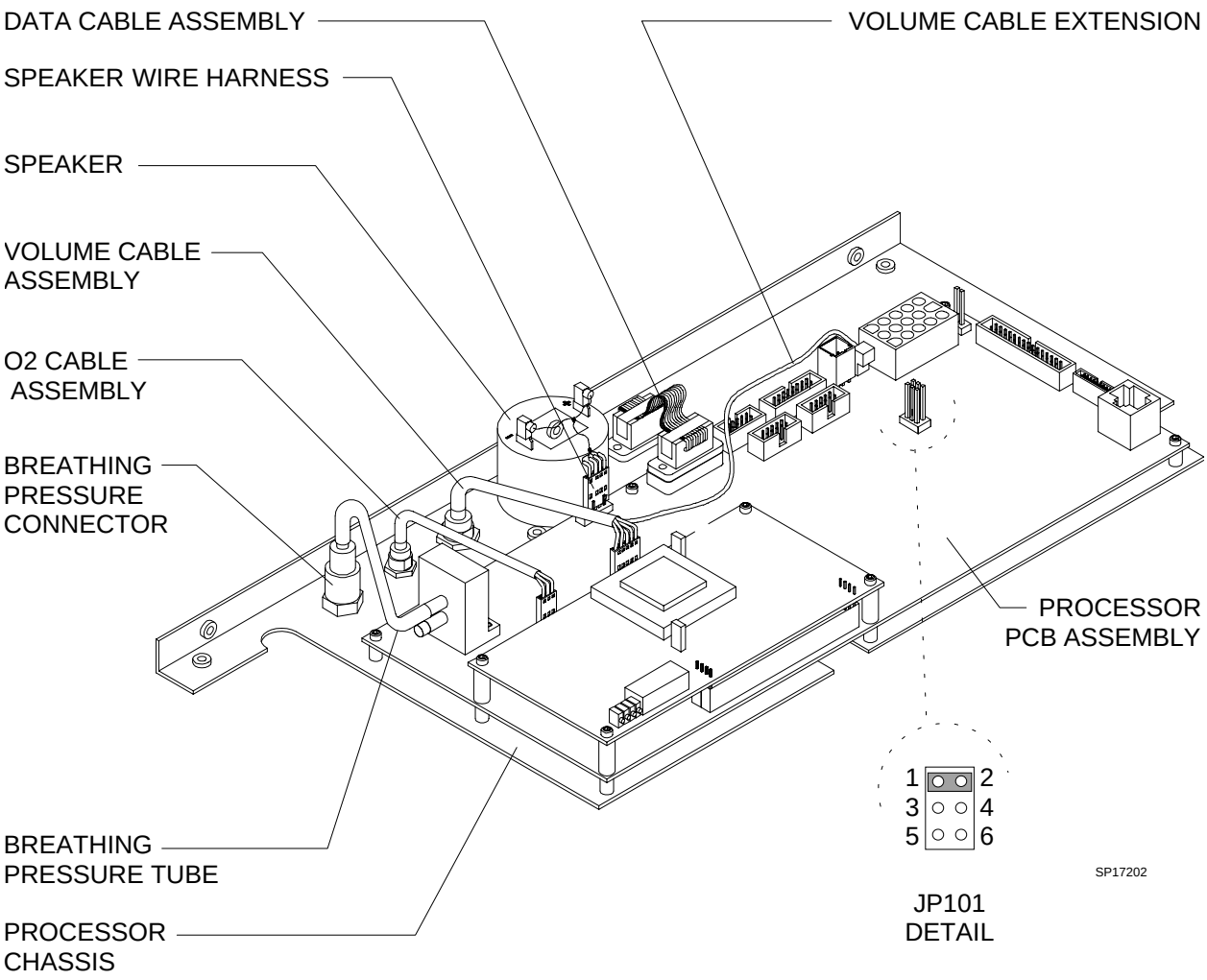


FIGURE 2. Processor PCB Installation on New Chassis

INSTALLATION PROCEDURE (continued)

Software Installation:

NOTE: If your machine has software version 1.21 or later, skip this section and proceed to the Ultrasonic Flow Sensor Installation.

The software update is done through a serial port connection on the machine to an external PC using the batch file LOADGS.BAT and containing Narkomed GS software version 1.21 or later.

1. Turn the System Power switch to STANDBY.

2. Connect an interface cable (9-pin or 25-pin) to COM 1 on the PC, and connect the other end of the cable to the Narkomed GS serial interface port as shown in Figure 3.

3. Power up the PC. At the DOS prompt, set the PC to read the drive holding the software. For example: if the software was downloaded to drive A, type A: and press ENTER.

4. Type LOADNMGS and press ENTER.

5. Turn the System Power switch to ON.

6. As the software is downloading, the incremental number of bytes sent will be displayed on the PC screen.

   When the download is complete, the PC screen will display:

   ```
   \  Bytes sent: 0  Images sent: 1
   ```

   Software installation is complete when the machine resets.

7. Turn the System Power switch to STANDBY, turn the PC OFF and disconnect the interface cable.

INSTALLATION PROCEDURE (continued)

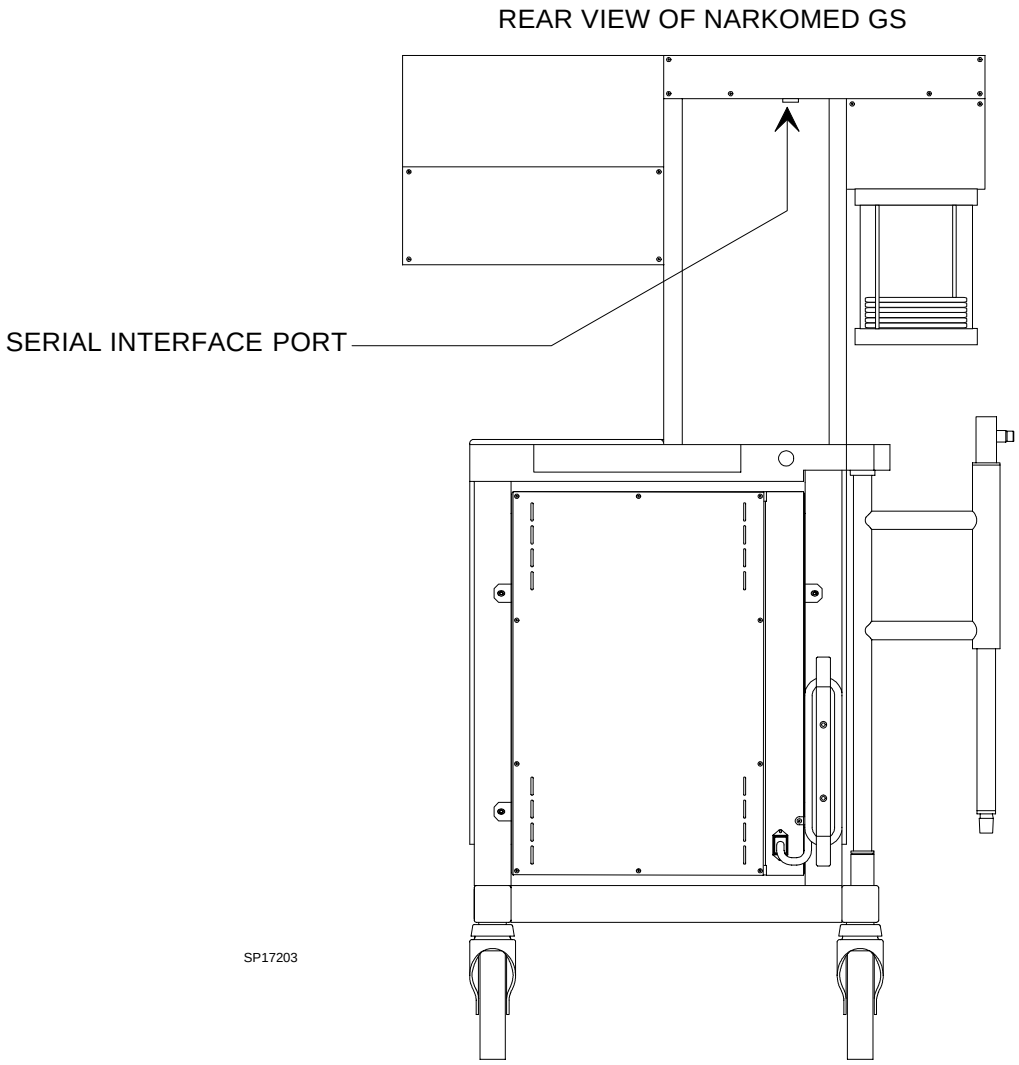


FIGURE 3. Serial Interface Port Location

INSTALLATION PROCEDURE (continued)

Ultrasonic Flow Sensor Installation:

1. Remove the existing Spiromed sensor from the absorber assembly by unscrewing its retaining nut.

CAUTION: Do not twist the body of the sensor when loosening the retaining nut. Hold the sensor while loosening the retaining nut to prevent damage to the unit.

2. Install the new flow sensor bracket and clamp on the expiratory valve mount neck, below the threads as shown in Figures 4 and 5.

CAUTION: In order to avoid interference between the connector hose and the bellows assembly, the flow sensor bracket must be oriented as shown in Figure 4.

3. Reinstall the expiratory valve (be sure a gasket is in place), oriented as shown in the illustration.

4. Slide the ultrasonic flow sensor down onto the bracket.

5. Install the connector hose on the threaded port of the flow sensor, and join the other end of the hose to the expiratory valve.

6. Connect the sensor plug to the volume sensor receptacle at the rear panel of the vent box.

7. Perform a PMS procedure on the system.

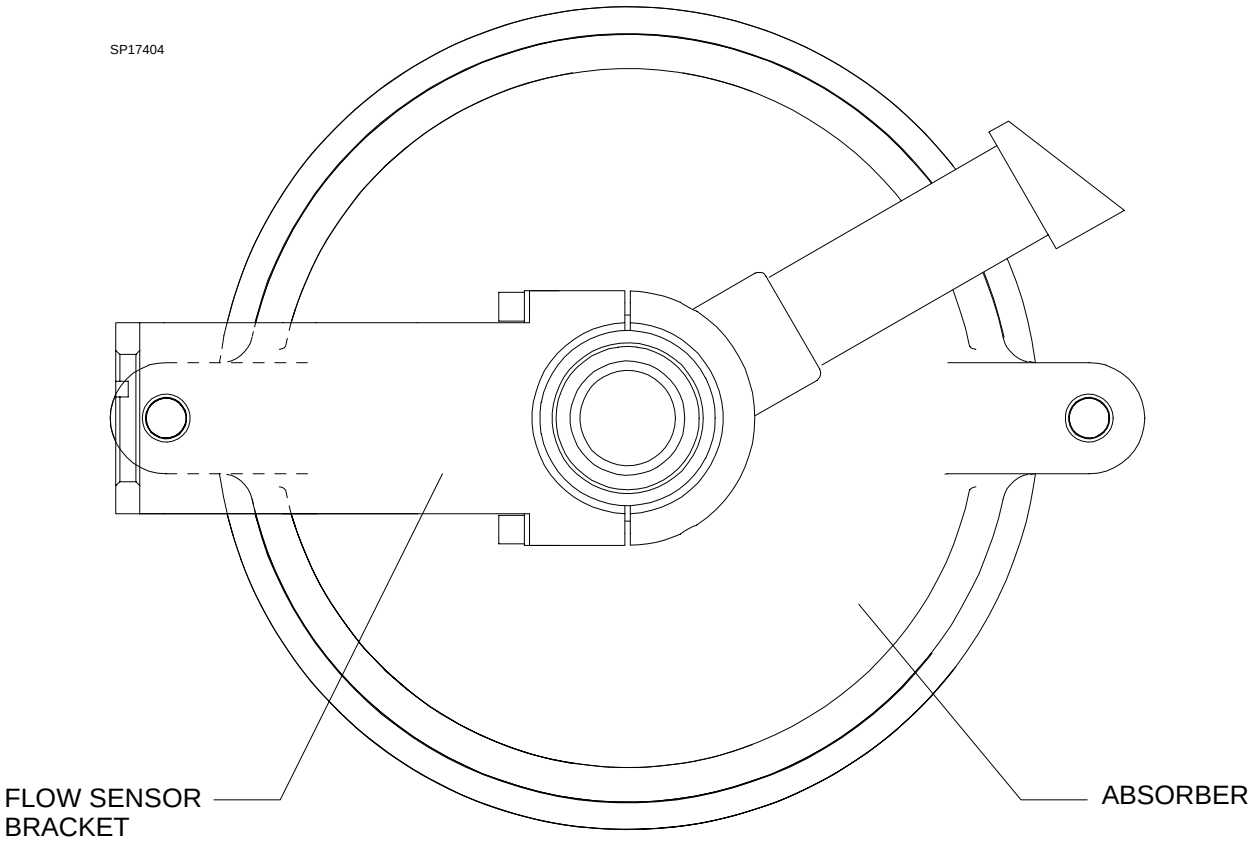


FIGURE 4. Flow Sensor Bracket Orientation: Top View

INSTALLATION PROCEDURE (continued)

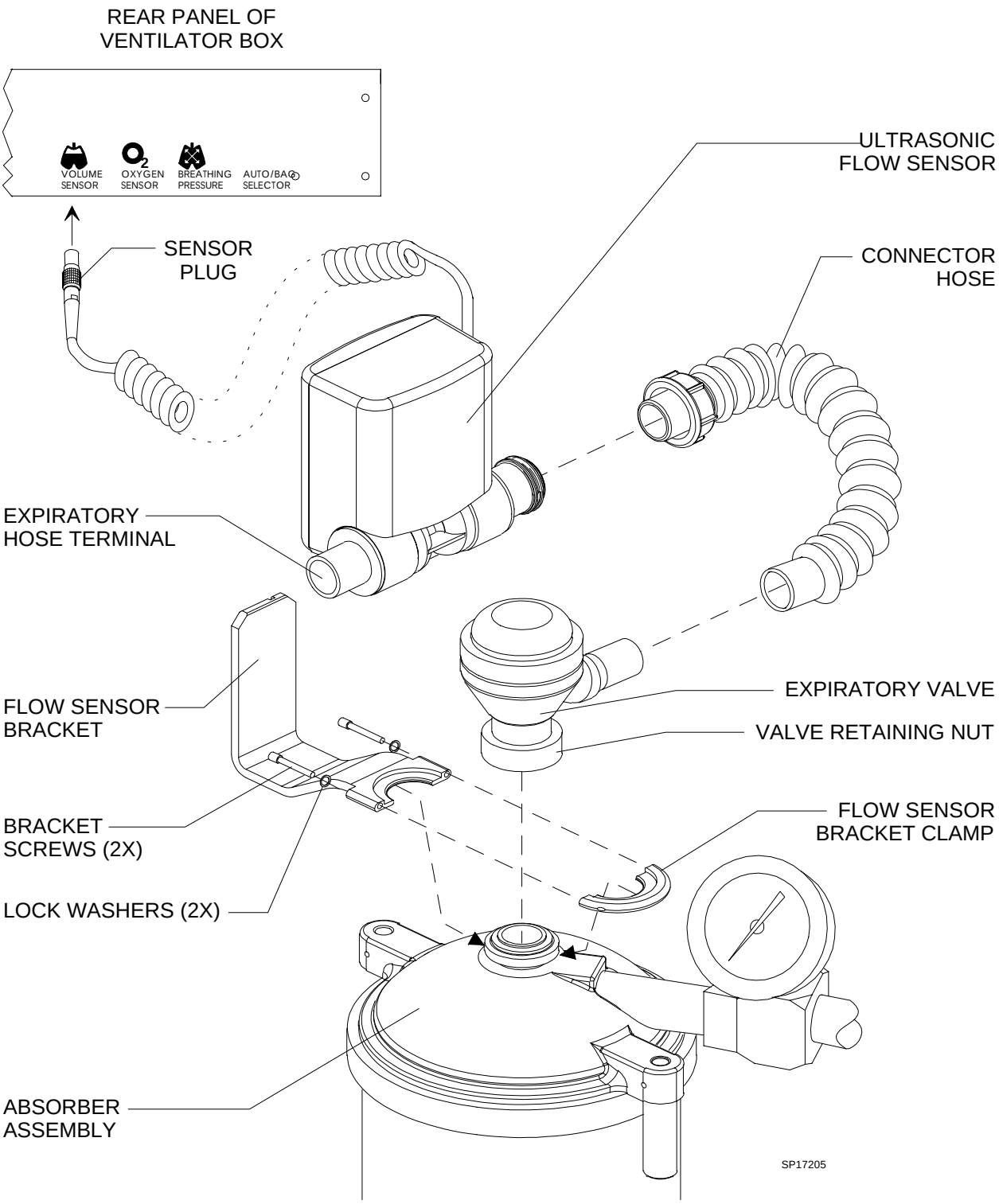


FIGURE 5. Ultrasonic Flow Sensor Installation

North
American
Dräger

Quality Service for Life®

DrägerService℠
3122 Commerce Drive
Telford, PA 18969
(215) 721-5402
(800) 543-5047
(215) 723-5935 Fax

Part Number: SP00172

Rev: B
Date: August 31, 1998
© 1998 N.A.D., Inc.